

**REMARKS**

Reconsideration of the present application in view of the above amendments and following remarks is respectfully requested.

**Amendments to the Specification**

The specification is amended to more accurately translate the incorporation by reference from the original German language.

**Status of the Claims**

Claims 12-34 are presented. Claims 12-14, 16-18, 20, 22-28 and 33 are amended. Claims 12, 17, 20, 25-27 and 33 are amended to overcome the new matter and indefiniteness rejections by replacing "hydrocarbon" with "poly- $\alpha$ -olefin", as discussed below. The remaining claims are amended for clarity. Support is found throughout the specification as originally filed. Claims 1-11 were previously cancelled. Claims 30-32 are cancelled without prejudice. No new claims are added in the present action.

No new matter has been introduced.

**Summary of the Invention as Claimed**

As presently amended, the claimed invention is drawn to a cosmetic composition comprising a **mixture of poly- $\alpha$ -olefins** which is produced by a dehydrating polymerization under specified reaction conditions (catalyst and temperature), using as starting material at least one primary alcohol selected from the group consisting of unsaturated monofunctional alcohols, branched monofunctional alcohols and difunctional alcohols (claims 12-29, 33-34). The composition comprising the so-produced mixture of poly- $\alpha$ -olefins has a high spreading value of >1000 mm<sup>2</sup>/10 min (claim 33). Preferred primary alcohols include 2-ethylhexanol and isononanol (claim 34).

**Rejections under 35 U.S.C. § 112, first paragraph**

Previously pending claims 12-34 were rejected under 35 U.S.C. § 112, first paragraph, with regard to the term "hydrocarbon" allegedly being new matter. Applicants do not necessarily agree with the Examiner's position in this regard. With respect, the argument that WO 2004/078336 discloses alkyl ethers, which are within the scope of "hydrocarbon" mixtures as previously claimed, is incorrect. The alkyl ethers, which by definition contain an oxygen atom, cannot be "hydrocarbons", since the ethers would be composed of carbon, hydrogen and oxygen, not just carbon and hydrogen as required for pure "hydrocarbons".

However, in order to further prosecution, the claims have been amended to remove the term "hydrocarbon mixture" and replace it with "mixture of poly- $\alpha$ -olefins", as literally supported throughout the original specification and claims.

In view of these amendments, the Examiner is respectfully requested to withdraw the new matter rejection.

**Rejections under 35 U.S.C. § 112, second paragraph**

Previously pending claim 20 was rejected under 35 U.S.C. § 112, second paragraph, with regard to the phrase "said hydrocarbon mixture comprises from 0.1% to 100% by weight based on the total quantity of oil components" being allegedly indefinite for not specifying a component or species of the hydrocarbon mixture. Even though applicants do not necessarily agree with the Examiner's assertions in this regard, the claim has been amended to "said mixture of poly- $\alpha$ -olefins comprises from 0.1% to 100% by weight of the total oil components of the composition".

In view of these amendments, the Examiner is respectfully requested to withdraw the indefiniteness rejection.

**Rejections under 35 U.S.C. § 102(b)**

Previously pending claims 12-33 were rejected under 35 U.S.C. § 102(b) as being anticipated by Collin (US 6,464,967). Applicants respectfully traverse the rejection.

Collin discloses a make-up composition comprising a poly- $\alpha$ -olefin (PAO) wax having a melting point ranging from 50-80°C, prepared by homopolymerization of alpha-olefins having at least 10 carbon atoms. Collin discloses that her poly- $\alpha$ -olefin wax is obtained by the well-known art process of homopolymerization of pure alpha-olefins (col. 2, lines 33-38). This standard method is well-known in the art to provide a relatively narrow set of oligomeric products. There are many commercial products available which are prepared by this process, including such trade names such as Nexbase®, and INCI names such as polydecene.

As a preliminary matter, we understand the Examiner's primary arguments to be the following:

1. In applicants' process, if dehydration of the primary alcohol initially yields an alkene mixture which subsequently polymerizes, then substituting prior art monomers (alpha-olefins) in place of the primary alcohols in applicants' process would allegedly produce the same products as the prior art, because at least a portion of the process (alkene mixture polymerizing to PAO) would be the same.

This understanding is based on the following statements by the Examiner:

"The Examiner notes that the rejection was based not on whether the mixtures disclosed are known, but rather the rejection was based on the material disclosed as known in the art could be prepared using the method recited by the claims, and thus lies within the scope of the claims, and thus anticipating [sic] the claims." (Office Action, page 4, bottom, through page 5, top)

"Applicant also states that...under dehydrating reaction conditions, primary alcohols are [sic] recited are isomerized into various unsaturated monomers which then polymerize with one another. The Examiner considers this not only unpersuasive, but supportive of the contention that the products formed from the prior art monomers (which are olefins) lie within the scope of the claims. It appears that the Applicant is stating that first the primary alcohols undergo a dehydration reaction, thus yielding the corresponding olefin(s), and then these olefins under[go] polymerization. This would imply that the initial step of the method affords a mixture of poly- $\alpha$ -olefins, by first dehydrating and isomerizing the olefins. While the Examiner agrees that polymerization of *pure 1-alkenes* would yield a different mixture than would be afforded by polymerizing a mixture of

olefins, which is not what the rejection asserted. Rather, the product prepared by the prior art involved polymerizing a mixture of olefins as well." (Office Action, page 5)

2. With regard to the last statement, Collin discloses (col. 2, lines 32-41) that the polyolefin wax is obtained by homopolymerization of "monomers consisting essentially of an alpha-olefin or of a mixture of alpha-olefins as defined above." (col. 2, lines 38-41) These mixtures are clearly mixtures of alpha-olefin monomers of **varying carbon content** ( $R-CH=CH_2$ , where  $R = C10$  to  $C50$ ).

In contrast, without wishing to be bound by any particular theory, applicants, including the declarant, Markus Dierker, have argued that the dehydration polymerization of a single primary alcohol ("at least one") provides an **isomeric mixture** of olefins—or "olefin-like intermediates" (cf. previously submitted Declaration of Markus Dierker)—including both terminal-alkene-like and internal-alkene-like species (ie, equivalent to a mixture of alpha-olefins and internal olefins), the subsequent polymerization of which provides a "poly-alpha-olefin" (PAO) having unique cosmetic properties. Collin makes no claim of polymerizing a mixture of alpha- and internal-olefins; instead, it is always stated that any mixture is of **alpha-olefins**.

With regard to the Examiner's first argument, the Supplemental Rule 1.132 Declaration of Markus Dierker, submitted herewith, discloses that **pure alpha-olefins do not react under applicants' reaction conditions (temperature and catalyst)**. This conclusively demonstrates that applicants' process is not just an extension of the art-standard alpha-olefin polymerization process (extension in the sense that the starting alpha-olefins are first prepared by dehydration of primary alcohols), but is a unique process providing a product that is substantially different from the art-standard poly-alpha-olefins. This difference is primarily evident in the properties of the cosmetic compositions, as discussed in the previous Reply, dated January 28, 2010, and the first Rule 1.132 Declaration of Markus Dierker of the same date, both of which are incorporated herein by reference.

Therefore, for at least these reasons, applicants' claims define novel and patentably unobvious subject matter over the cited art.

**Rejections under 35 U.S.C. § 103(a)**

Previously pending claims 12-34 were rejected under 35 U.S.C. § 103(a) as being obvious over Hansenne (US 5,747,009; "Hansenne") in view of Zander et al. (WO 03/035707; using US 2004/0267073 as English translation; "Zander"). Applicants respectfully traverse the rejection.

Hansenne discloses a cosmetic composition comprising an art-standard PAO. Hansenne fails to disclose PAOs prepared by applicants' dehydrating polymerization process. Therefore, the examiner joined Zander.

Zander (same assignee as present application) discloses a process for producing poly-alpha-olefins comprising (a) providing a primary alcohol, and (b) polymerizing the primary alcohol in the presence of an acidic alumino layer silicate to form a poly-alpha-olefin.

However, as discussed above, the Supplemental Rule 1.132 Declaration of Markus Dierker, submitted herewith, discloses that **pure alpha-olefins do not react under applicants' reaction conditions (temperature and catalyst)**. This conclusively demonstrates that applicants' process is not just an extension of the art-standard alpha-olefin polymerization process (extension in the sense that the starting alpha-olefins are first prepared by dehydration of primary alcohols), but is a unique process providing a product that is substantially different from the art-standard poly-alpha-olefins. This difference is primarily evident in the properties of the cosmetic compositions, as discussed in the previous Reply, dated January 28, 2010, and the first Rule 1.132 Declaration of Markus Dierker of the same date, both of which are incorporated herein by reference.

**Conclusion**

In summary, in view of the above claim amendments and remarks, applicants believe that all of the pending claims as amended are in condition for allowance. The Examiner is respectfully requested to reconsider, withdraw the rejections and allow the claims.

If any additional fees are required in support of this application, authorization is granted to charge our Deposit Account No. 50-1943.

Respectfully submitted,

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Date

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